

REMARKS

Claims 7-11 are pending in this application. Claims 1-6 and 12-16 have been canceled. Claim 7 has been amended in order to more particularly point out, and distinctly claim the subject matter to which the applicants regard as their invention.

The Office Action required a new, more descriptive title. Accordingly, the title has been amended to read: "A METHOD OF MANUFACTURING A WHEEL RIM".

In the Office Action, the Abstract was objected to for not disclosing the invention as claimed in the elected claims. Accordingly, submitted herewith is a replacement Abstract and removal of the objection is respectfully requested.

Claim 7, the only independent claim, as amended, is to a method of manufacturing a wheel rim by bringing end faces of a workpiece into abutment against each other to form a hollow cylindrical body and forming a circumferential recess which is depressed from an outer circumferential wall of the hollow cylindrical body toward an inner circumferential wall thereof. The method includes the steps of providing protrusions disposed near ends of a joined area of the hollow cylindrical body and extending in a joining direction, and then pressing the outer circumferential wall of the hollow cylindrical body having the protrusions to form the recess, such that the pressed hollow cylinder has substantially flush circumferential edges.

In the Office Action, Claims 7-9 and 11 are rejected as obvious under 35 U.S.C. § 103(a) in view of Applicants' Admitted Prior Art (AAPA) combined with Yamaguchi et al. (U.S. 6,598,294); and Claim 10 rejected as obvious in view of a combination of those two references and Imamura et

al. (U.S. 2006/0107715). Reconsideration and removal of these rejections are respectfully requested in view of the amendments to Claim 7 and the following remarks.

The Office Action asserts that, as described in AAPA (pages 1 and 2 of the present specification), it is known to make a wheel rim by bringing the end faces of an elongated rectangular plate into abutment against each other, and joining the abutting end faces to each other by resistance welding, MIG welding, or the like, to form a hollow cylindrical body followed by forming a circumferential recess which is depressed from an outer circumferential wall of the hollow cylindrical body toward an inner circumferential wall.

Although AAPA does not explicitly teach the step of providing protrusion disposed near ends of a joined area of said hollow cylindrical body and extending in a joining direction, Yamaguchi et al. is cited as teaching a method of fabricating a hollow cylindrical body by providing protrusions (made by abutting opposing fingers/ear portions formed at four corners of a rectangular metallic workpiece) followed by roll forming the workpiece into a tubular member to effectively eliminate any possibility of cracks occurring at the weld joint during the subsequent drawing process.

It is alleged that it would have been obvious to have provided AAPA with the step of providing protrusion at the ends of a joined area as taught by Yamaguchi et al. in order to provide an effective weld joint.

Applicants respectfully submit that there are distinct differences between the prior art and the method described in the present specification.

Specifically, the Yamaguchi reference, while it does show ears or protrusions (11) on a metallic plate member that is rolled up, the protrusions are completely cut off after the TIG or MIG welding, before further processing of the rolled article. In the present described method, only part of the protrusion is removed after friction stir welding and remaining protrusion portions are present prior to pressing to form a recess in the outer circumferential wall of the hollow cylindrical body.

In contrast, in the present invention, the protrusions are present prior to pressing to form a recess in the outer circumferential wall of the hollow cylindrical body though only part of the protrusion is removed.

Claim 7 has been amended to provide that the outer circumferential wall of the hollow cylindrical body has the protrusions pressed so that the ends of the joined area become substantially flush with the rest of the circumferential edge of the hollow cylinder.

With the protrusions remaining, it is possible for the present invention to make the circumferential edges of the pressed hollow cylindrical body substantially flush. An object of the present invention is to prevent reduction in dimensional accuracy due to the material drawn by the pressing in the joined area. Therefore, "pressing said outer circumferential wall of said hollow cylindrical body having the protrusions" is an important feature of the present invention.

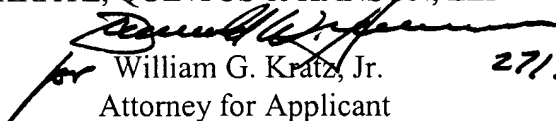
In view of the aforementioned amendments and accompanying remarks, Claims 7-11, as amended, are believed to be patentable and in condition for allowance, which action, at an early date, is requested.

U.S. Patent Application Serial No. 10/560,835
Response to OA dated July 10, 2008

In the event that this paper is not timely filed, the applicants respectfully petition for an appropriate extension of time. Please charge any fees for such an extension of time and any other fees which may be due with respect to this paper, to Deposit Account No. 01-2340.

Respectfully submitted,

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PATENT & TRADEMARK OFFICE

Enclosure: Replacement Abstract of the Disclosure

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ABSTRACT OF THE DISCLOSURE:

A method of manufacturing a wheel rim (10) is produced by a production process including ~~a step (A) of bending a workpiece (11) to bring~~ by bringing end faces of ~~[[the]]~~ a workpiece into abutment against contact with each other, a step (B) of forming a circular cylinder to form a hollow cylindrical body and forming a circumferential recess which is depressed from an outer circumferential wall thereof, including providing protrusions disposed near ends of a joined area of the hollow cylindrical body and extending in a (12) by joining direction, and then ~~the end faces brought to be in contact with each other,~~ a step (C) of inspecting a joint portion (13) of the circular cylinder body (12), a step (D) of forming a drop portion (16), ~~subsiding toward the inner peripheral wall (15) side, in an outer peripheral wall (14) of the circular cylinder body (12),~~ ~~a~~ by bending both end portions of the circular cylinder body (12), a step (F) of forming hump portions (20) by pressing the outer circumferential circular cylinder body (12) from the inner peripheral wall (15) side to raise the ~~outer peripheral wall of the hollow cylindrical body to form the recess (14),~~ and a step (G) for forming a valve hole (22) and water drain holes (24) in the drop portion (16) and the curl portions (18). The rim (10) and a disk (102) that is separately produced are welded to form a wheel (122).